How to Buy a Low-Flow Pre-Rinse Spray Valve

Energy Efficiency and Renewable Energy
Federal Energy Management Program

Why Agencies Should Buy Efficient Products

- *Executive Order 13123 and FAR section 23.704 direct agencies to purchase products in the upper 25% of energy efficiency, including all models that qualify for the EPA/DOE* ENERGY STAR® *product labeling program.*
- *Agencies that use these guidelines to buy efficient products can realize substantial operating cost savings and help prevent pollution.*
- *As the world's largest consumer, the federal government can help "pull" the entire US market towards greater energy efficiency, while saving taxpayer dollars.*

Efficiency Recommendation

Product Type	Recommended		Best Available	
	Flow Rate	Cleaning Performance[a]	Flow Rate	Cleaning Performance
Pre-Rinse Spray Valve	2.0 gpm or less @ 60 psi	26 seconds per plate or less	1.6 gpm @ 60 psi	22 seconds per plate

a) Based on ASTM F2323-03: Standard Test Method for Pre-Rinse Spray Valves

Where to Find Low-Flow Pre-Rinse Spray Valves

Low-flow pre-rinse spray valves are available through the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells pre-rinse valves through its Multiple Awards Schedule program and online shopping network *GSAAdvantage!* DLA offers them through its Defense Supply Center Philadelphia and online through *DoD EMall*. Purchase models that meet the recommended flow rate and cleaning performance shown in the table above. When purchasing pre-rinse spray valves through a commercial source, request models that meet this Efficiency Recommendation.

How to Select a Low-Flow Pre-Rinse Spray Valve

All pre-rinse valves use a spray of water to remove food waste from dishes prior to cleaning in a dishwasher. They reduce water consumption, water heating cost, and waste water (sewer) charges. Note that not all low flow designs exhibit comparable cleaning performance. Products with high velocity spray patterns will show substantially better cleaning performance than those which simply use a flow restrictor to achieve the recommended gallon per minute flow. Purchase only those models that have been tested in accordance with ASTM F2323-03: Standard Test Method for Pre-rinse Spray Valves and meet this Efficiency Recommendation.

Federal Supply Sources:

- General Services Administration (GSA)
  Phone: (816) 926-6760
  www.fss.gsa.gov
  www.gsaadvantage.gov
- Defense Logistics Agency (DLA)
  Phone: (800) DLA-2852 or (215) 737-7950
  www.dla.mil
  www.emall.dla.mil

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and World Wide Web site have up-to-date information on energy-efficient and water conserving federal procurement, including the latest versions of these recommendations.
  Phone: (800) 363-3732
  www.eere.energy.gov/femp/procurement
- The Food Services Technology Center (FSTC) has an online data base of products that have been tested in accordance with ASTM F2324-03 and meet this recommendation.
  http://www.fishnick.com/saveenergy/femp/
- FSTC in San Ramon, California conducted research and product testing on pre-rinse valves. FSTC is funded by California utility customers and administered by the Pacific Gas and Electric Company under the auspices of the California Public Utilities Commission.
  Phone: (925) 866-2844
  www.fishnick.com
- FSTC has an online calculator that can be used to estimate the water, energy and utility cost savings from installing pre-rinse valves.
  www.fishnick.com/tools/watercost/
- The California Urban Water Conservation Council installs free pre-rinse valves in food service facilities in California through its "Rinse & Save" program.
  Phone: (916) 552-5885
  www.cuwcc.org/sprayvalves.lasso
- Lawrence Berkeley National Laboratory provided market analysis for this recommendation.
  Phone: (202) 646-7950

Pre-Rinse Valve Features

Pre-rinse spray valves include a nozzle, squeeze lever, and dish guard bumper. The spray valves usually have a clip to lock the handle in the "on" position. Pre-rinse valves are inexpensive and easily interchangeable with different manufacturers' assemblies. A typical pre-rinse valve lasts about five years unless it is of substandard manufacture, improperly installed, or used in a facility with poor water quality.

User Tips

Because scale buildup reduces their effectiveness and lengthens dish washing times, pre-rinse spray valves should be cleaned annually For severely clogged valves, it is more cost- effective to replace the valve with a new, low-flow model instead of "drilling out" the scale to restore water flow, a practice which lowers spray velocity, increases water use and reduces the overall cleaning performance of the valves.

Low-Flow Pre-Rinse Spray Valve Cost-Effectiveness Example

Performance	Base Model	Recommended Level	Best Available
Nominal Flow Rate	3.0 gpm[a] @ 60 psi	2.0 gpm @ 60 psi	1.6 gpm @ 60 psi
Cleaning Performance	26 seconds/plate	26 seconds/plate	22 seconds/plate
Annual Water Use	262,800 gallons	175,200 gallons	140,160 gallons
Annual Water & Sewer Cost	$1,050	$700	$560
Lifetime Water & Sewer Cost	$4,810	$3,210	$2,570
Lifetime Water & Sewer Cost Savings	-	$1,600	$2,240
Annual Energy Use	1590 therm	1,060 therm	846 therm
Annual Energy Cost	$635	$420	$340
Lifetime Energy Cost	$2,900	$1,890	$1,530
Lifetime Energy Cost Savings	-	$1,010	$1,370
Total Lifetime Savings	**–**	**$2,610**	**$3,610**

a) There is no federal standard for pre-rinse spray valves. Researchers at FSTC estimate the industry average at 3.0 gpm.

Definition

Lifetime Energy Cost is the sum of the discounted value of annual energy costs based on average usage and an assumed pre-rinse valve life of 5 years. Future gas price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2003 to March, 2004).

Cost-Effectiveness Assumptions

Annual energy use is calculated based on a boiler efficiency of 80% and a 58°F temperature rise. The pre-rinse spray valve would be used an average of four hours per day, 365 days per year which is typical in Veteran's Hospitals and federal prisons, and on military bases. The gas price is $0.40 per therm, the average in federal facilities in the US, and the assumed water/waste water rate is $4/1000 gallons.

What if my Gas Price, Water Rate or Operating Hours are different?

To calculate Lifetime Energy Cost Savings for a different gas price, multiply the savings in the above table by this ratio: $\left(\frac{Your\ price\ in\ \$/therm}{\$0.40/therm}\right)$. Similarly, for a different water/waste water rate, multiply the savings in the table above by the following ratio: $\left(\frac{Your\ price\ in\ \$/1000\ gallons}{\$4/1000\ gallons}\right)$ For a different operating hours, multiply the savings by this ratio: $\left(\frac{Your\ operating\ hours}{1460\ hours}\right)$.

Metric Conversions

1 gallon = 3.8 liters
1 therm = 100,000 btu
= 29.3 kWh
= 105.5 MJ
1 psi = 6.9 kPa
*°F = (°C * 1.8) + 32*